

Science

Researchers develop new tool that can detect Covid-19 and its variants

Prashasti Awasthi | Mumbai | Updated on March 30, 2021



A team of scientists from the led by Nanyang Technological University (NTU), Singapore has designed a new diagnostic test that can detect Covid-19 even after it has gone through mutations.

The test is called the VaNGuard (Variant Nucleotide Guard) test. According to the study, the new diagnostic test makes use of a gene-editing tool known as CRISPR, which is used widely in scientific research to alter DNA sequences. It also modifies gene function in human cells under lab conditions and

diagnostic applications.

According to the researchers, the VaNGuard test can be used on crude patient samples in a clinical setting without the need for RNA purification, and yields result in 30 minutes.

Tan Meng How, Associate Professor NTU's School of Chemical and Biomedical Engineering, said: "Viruses are very smart. They can mutate, edit, or shuffle their genetic material, meaning diagnostic tests may fail to catch them. Hence, we spent considerable effort developing a robust and sensitive test that can catch the viruses even when they change their genetic sequences."

"In addition, frequent testing is essential for helping break the transmission of viruses within populations, so we have developed our tests to be rapid and affordable, making them deployable in resource-poor settings," he added.

The researchers made the test more feasible by integrating the test into a specially treated paper strip that looks similar to a pregnancy test.

The paper strip is dipped into a tube containing the crude nasopharyngeal sample and the reaction mix.

The authors wrote that in the presence of a SARS-CoV-2 virus or its variant, two strong bands will appear on the paper strip. In the absence of the virus, only one band will appear.

The scientists validated the VaNGuard test's ability to detect SARS-CoV-2 variants by synthesising an RNA sample that has the same mutated sequence as a known SARS-CoV-2 variant.

The study was published in the scientific journal *Nature Communications*.

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